



The Number Plane

THE NUMBER PLANE

Series **H**



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Page 4-5 questions**Plane grid**

- 1
- a The walking track joins the road in grid H6
 - b D9 is completely filled with dam water
 - c The creek joins the dam in grid D7
 - d Three features in grid C6 are: Creek, Bridge, Road
 - e The creek enters the state forest in grid K4
 - f Buildings are located in: B7, E5, G11, H10
 - g You would be in K7
- 2
- a Pi St joins with Vertical Road at B5
 - b Change rooms are located in grid G5
 - c Dog Leg Lane comes to an end in grid C11
 - d The Police Station is at C8 and the Ambulance Station is at I6
 - e The pond is in grid I10
 - f The Fire Station will be built in grid I4
 - g
 - Turn right onto Cark Park Road at F3
 - Then turn left onto Oval Road at H3
 - Then turn right onto Horizontal Way at H7
 - Drive along this road to the post office located at M7 on the left hand side.

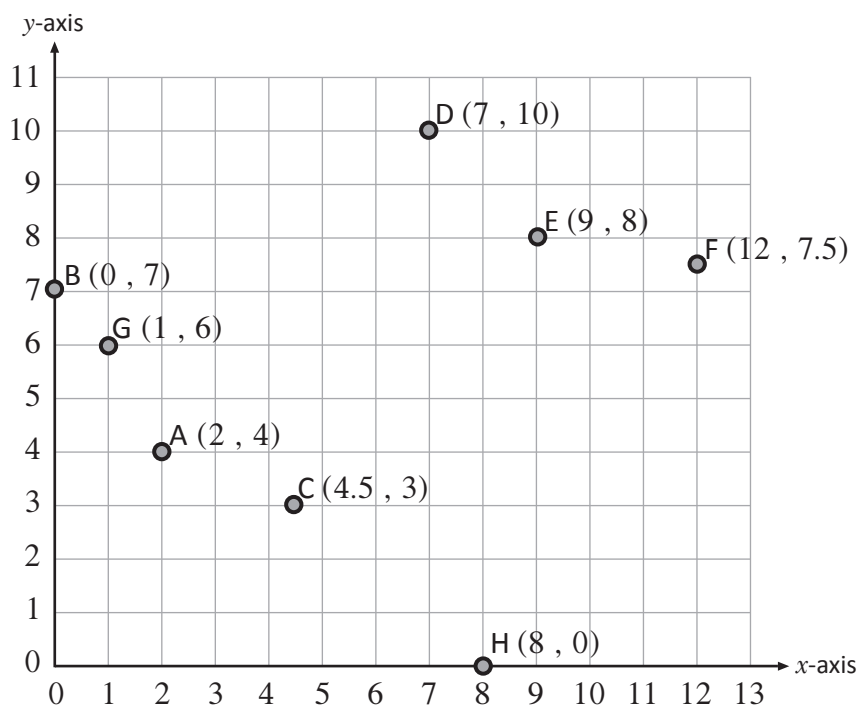
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Axes and coordinates

1

F A N T A S T I C !
(7, 6) (11, 3) (3, 11) (1, 5) (0, 1) (9, 0) (6, 7) (5, 3.5) (9.5, 10) (8, 8)

2

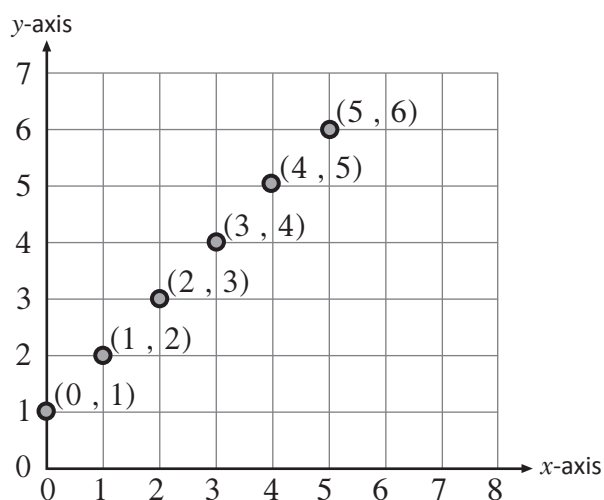


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Graphing tables of values

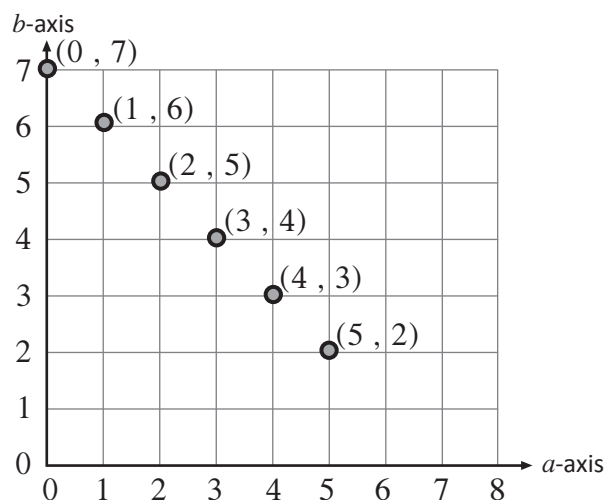
1 a

x	0	1	2	3	4	5
y	1	2	3	4	5	6



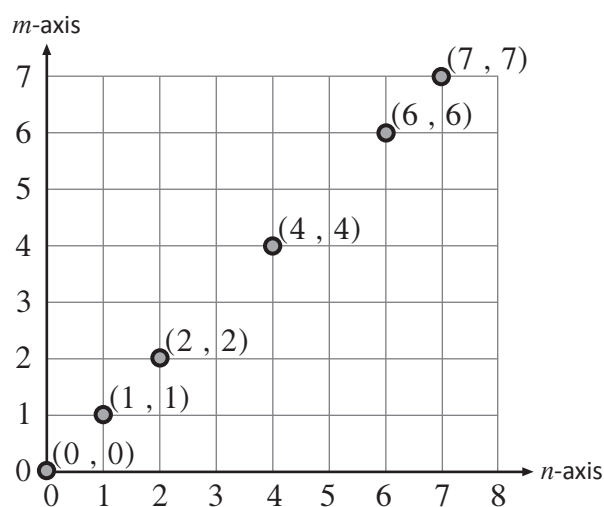
b

a	0	1	2	3	4	5
b	7	6	5	4	3	2



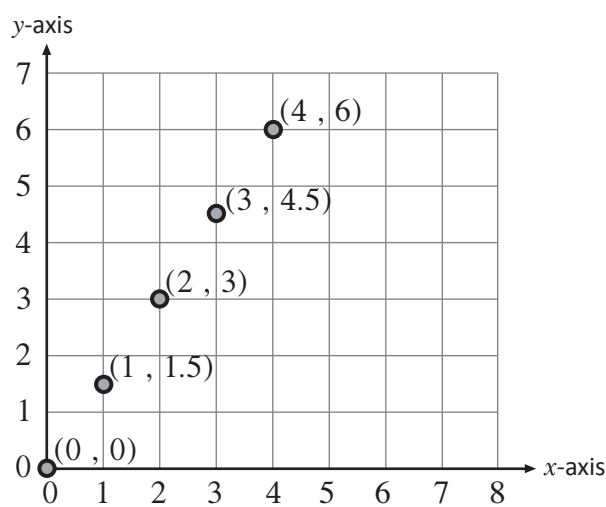
c

n	0	1	2	4	6	7
m	0	1	2	4	6	7



d

x	0	1	2	3	4
y	0	1.5	3	4.5	6

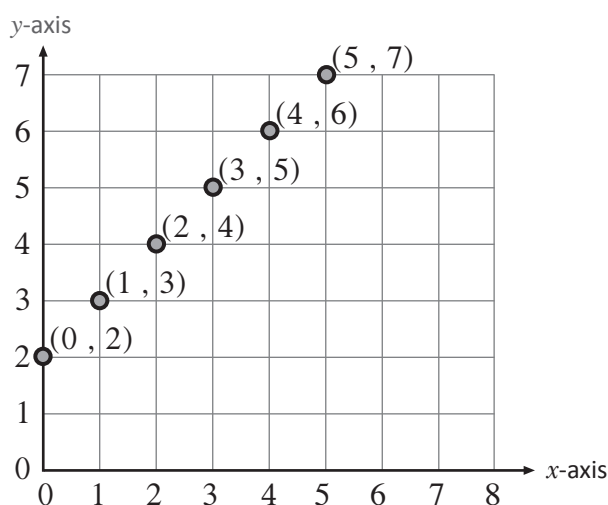


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Graphing tables of values

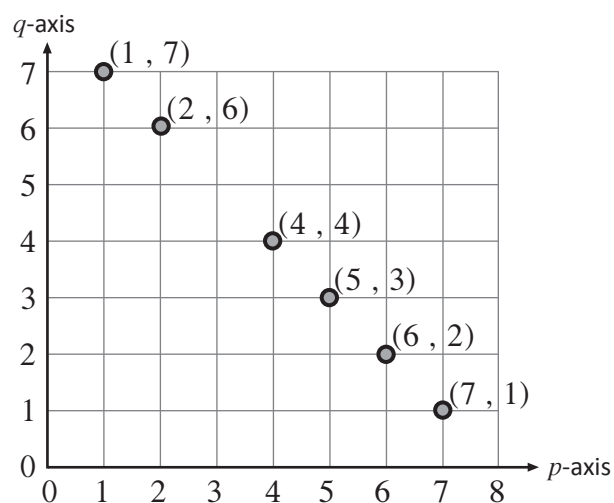
2 a $y = x + 2$

x	0	1	2	3	4	5
y	2	3	4	5	6	7



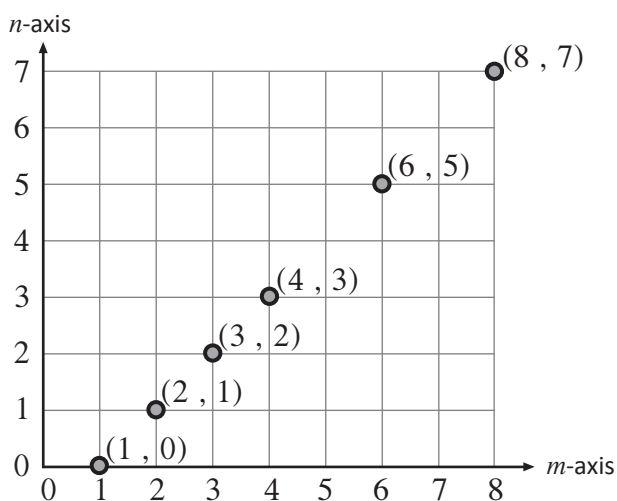
b $q = 8 - p$

p	1	2	4	5	6	7
q	7	6	4	3	2	1



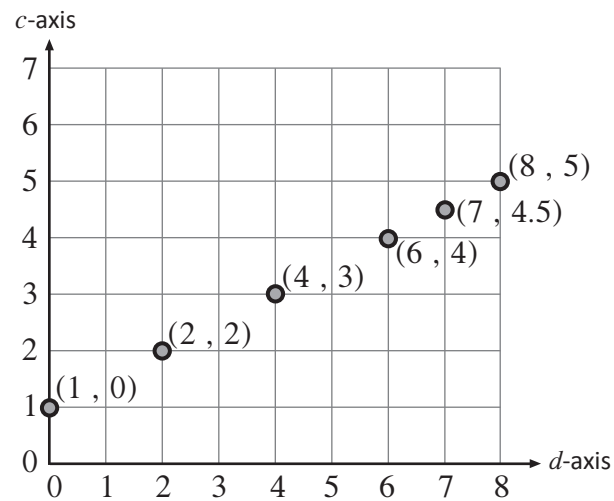
c $n = m - 1$

m	1	2	3	4	6	8
n	0	1	2	3	5	7



d $c = \frac{d}{2} + 1$

d	0	2	4	6	7	8
c	1	2	3	4	4.5	5



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Dependent and independent variables

- 1 (i) Circle the
- independent**
- variables

a $y = \textcircled{x} + 5$

b $12 - \textcircled{b} = a$

c $m = \textcircled{n} \div 4$

- (ii) Circle the correct answer to the statement:

"Independent variable values are placed onto the horizontal axis."

☒ True

☐ False

- 2 (i) Circle the
- dependent**
- variables

a $y - 5 = \textcircled{x}$

b $\textcircled{a} = b + 12$

c $4m = \textcircled{n}$

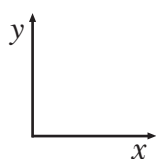
- (ii) Circle the correct answer to the statement:

"Dependent variables are **not** affected by the values of the independent variables."

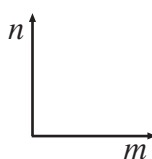
☐ True

☒ False

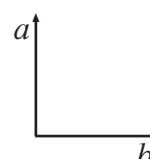
3 a $y = 2x - 1$



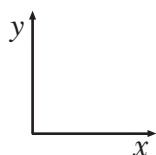
b $m + 3 = n$



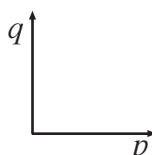
c $a = \frac{b}{2}$



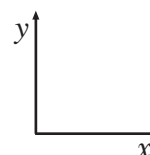
d $y = \frac{x}{3} + 1$



e $3 + p = q$



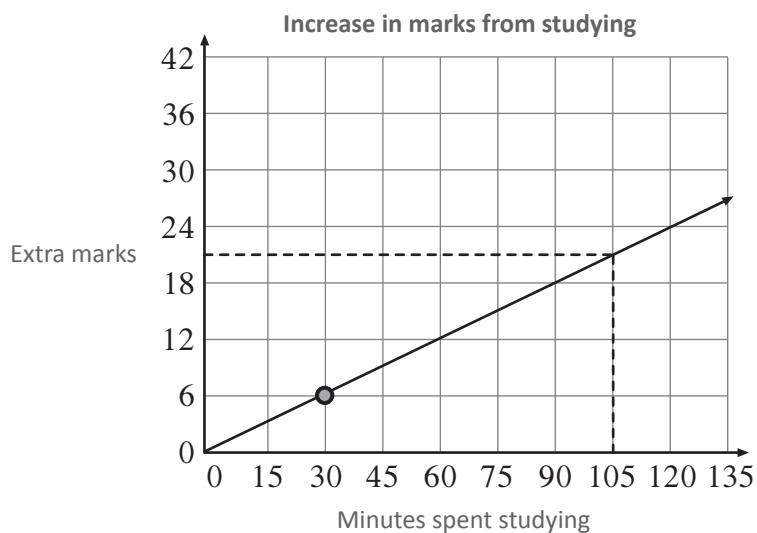
f $2x + 3 = y$



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Fees and charges

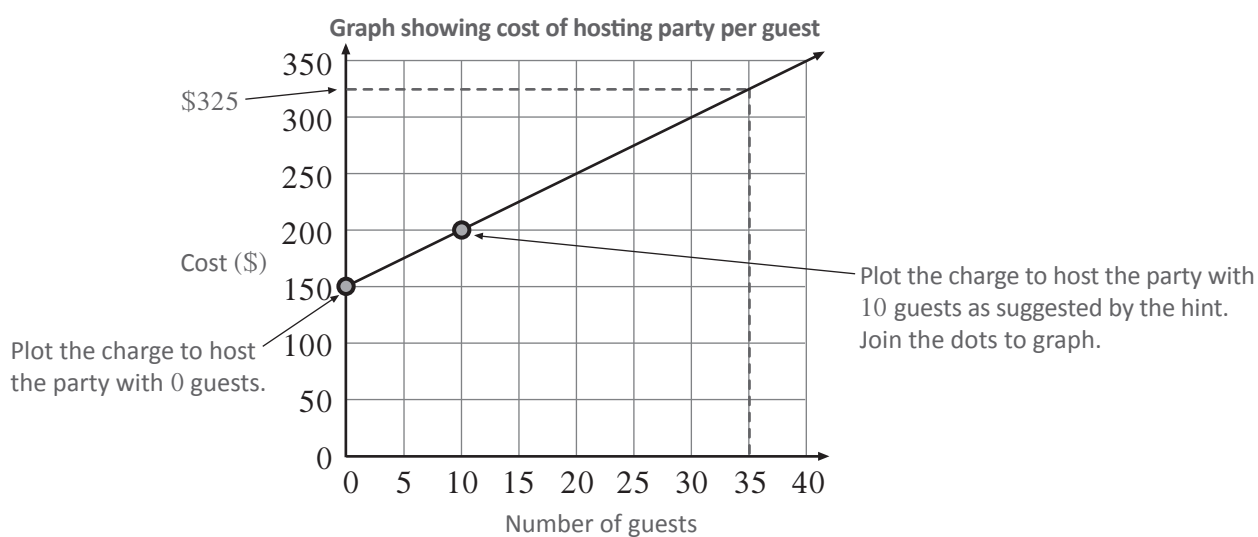
1 (i)



(ii) From the graph, extra marks achieved by studying for 105 minutes is half-way between 18 and 24 minutes.

\therefore 21 extra marks could be achieved for 105 minutes according to the survey.

2 (i)



(ii) From the graph, a party with 35 guests will cost half-way between \$300 and \$350.

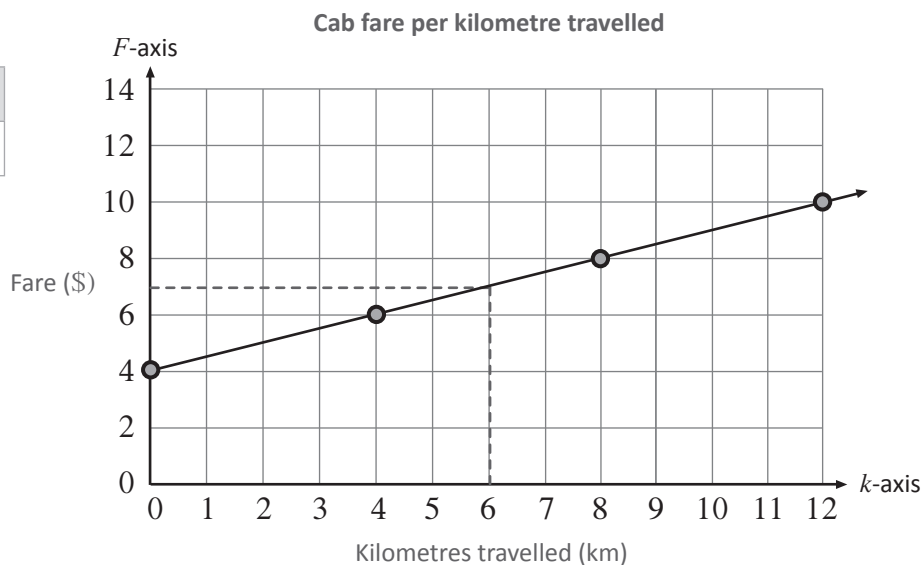
\therefore To have 35 guests at the party will cost \$325.

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Fees and charges

3 (i) $F = \$0.50 \times k + 4$

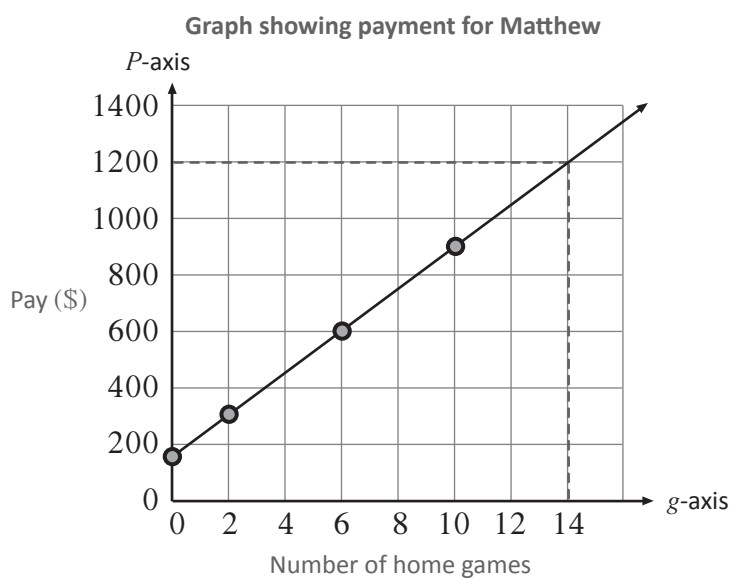
k	0	4	8	12
F	4	6	8	10



(ii) From the graph, a person with \$7 could travel: **6 kilometres**

4 (i) $P = 75g + 150$

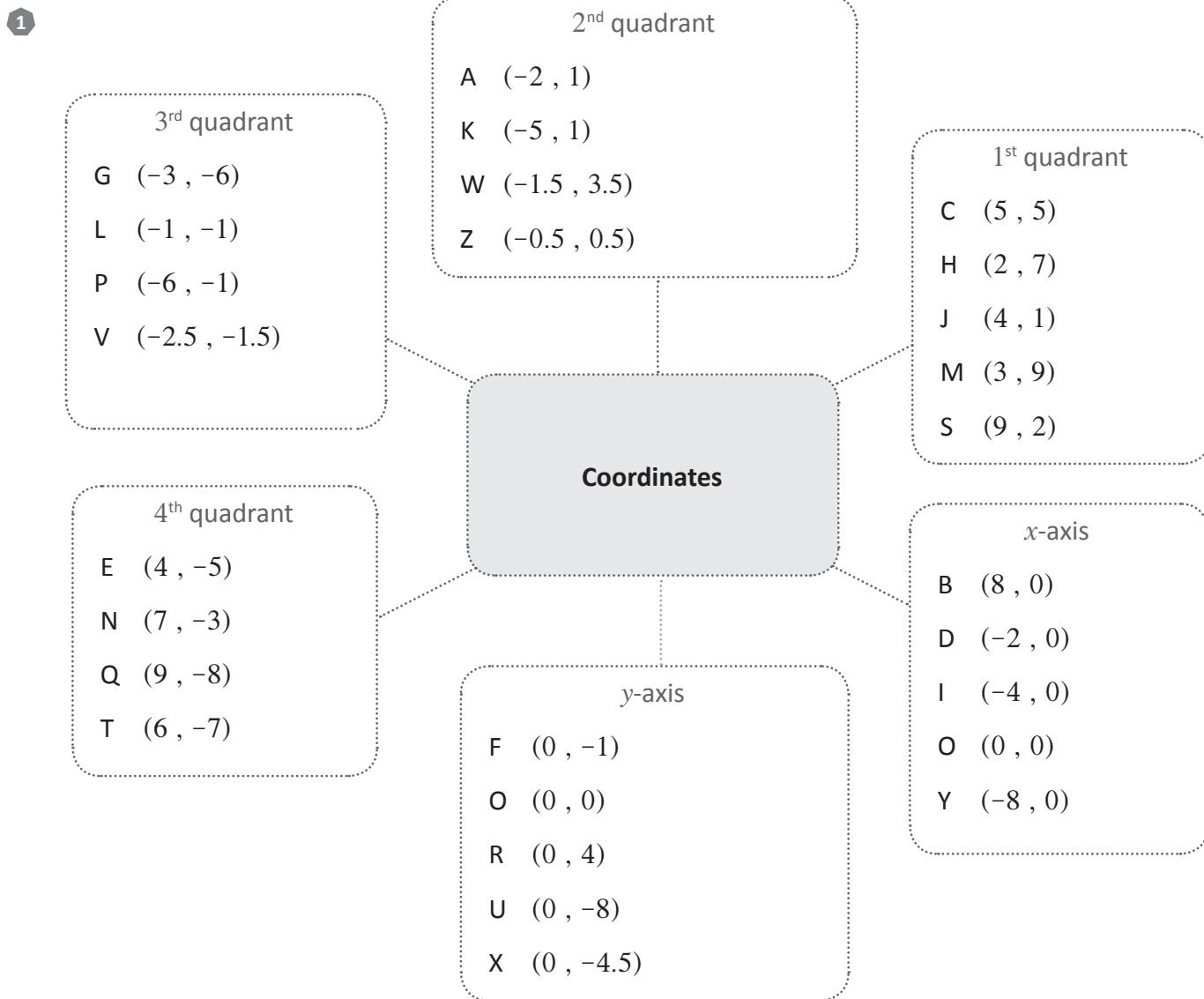
g	0	2	6	10
P	150	300	600	900



(ii) From the graph, Matthew must attend **14 games** to earn \$1200.

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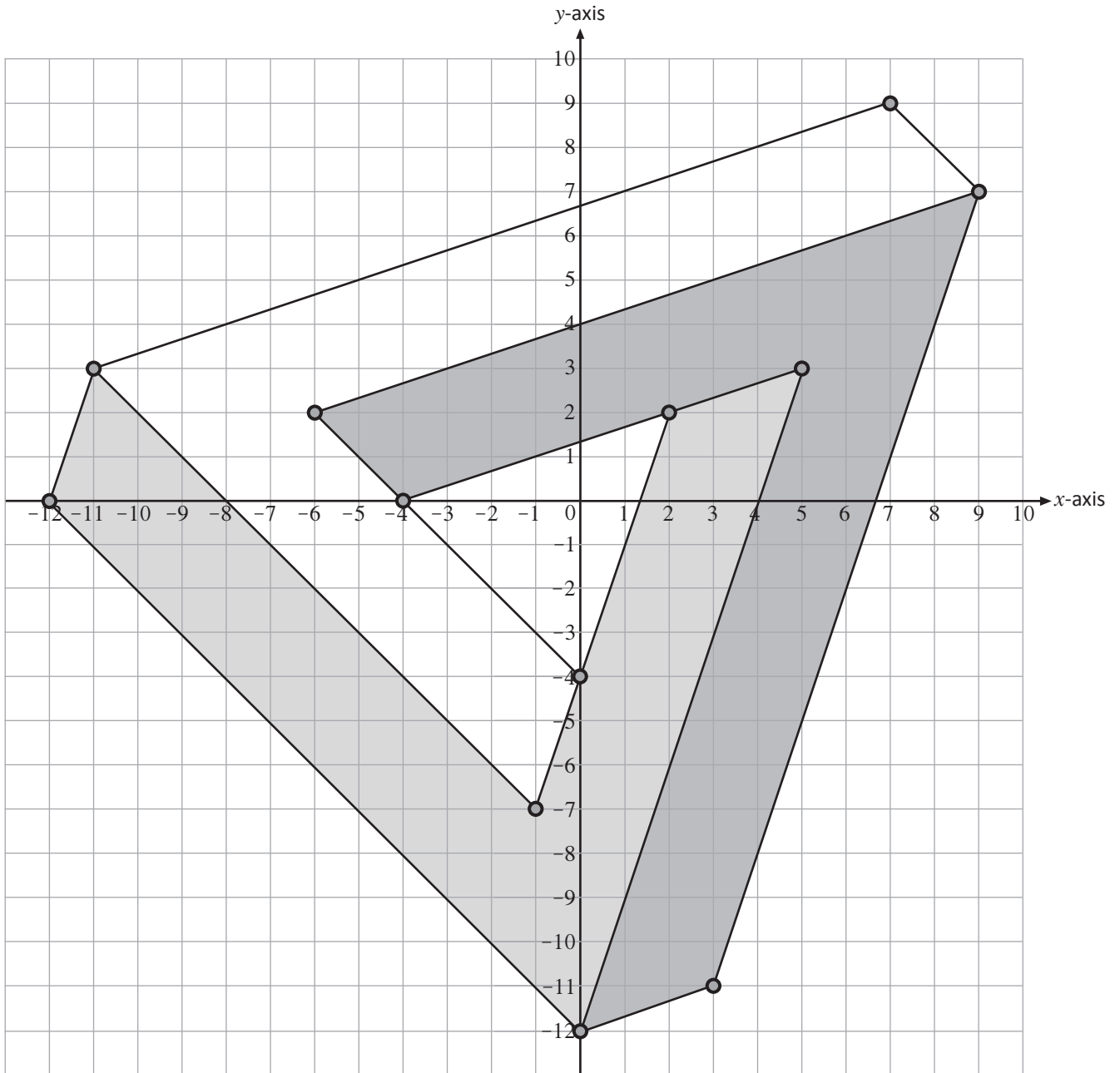
More axes and coordinates



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More axes and coordinates

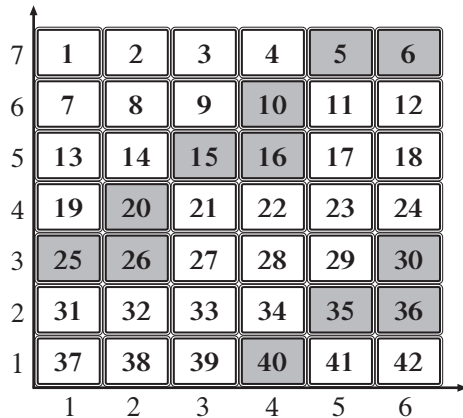
2



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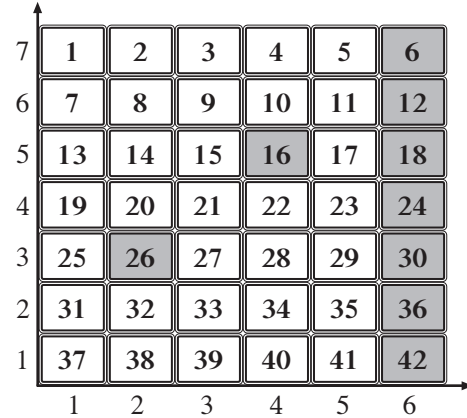
Interesting applications

- 1 (i) "Any multiple of 5 or a number with a 6 in it."



(1, 3) (2, 3) (2, 4) (3, 5)
 (4, 5) (4, 6) (5, 2) (5, 7)
 (6, 2) (6, 3) (6, 7)

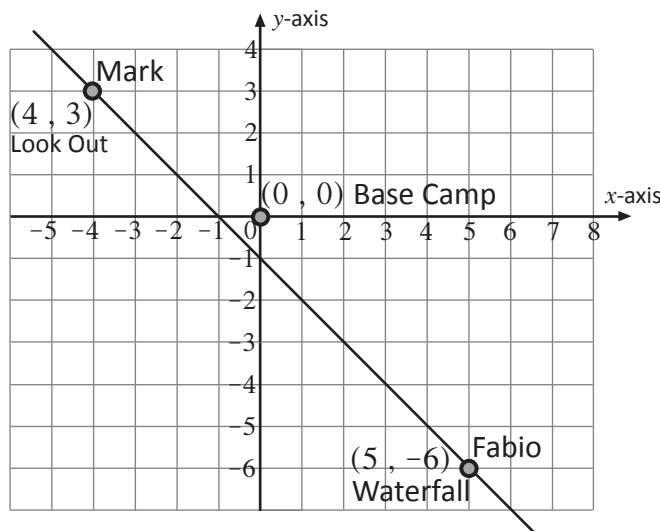
- (ii) If the artist changes the rule to: "Any number divisible by 6 and including numbers with a 6 in it."



The television sets turned off from the previous rule are located at:

(1, 3) (2, 4) (3, 5) (4, 1) (4, 6) (5, 2) (5, 7)

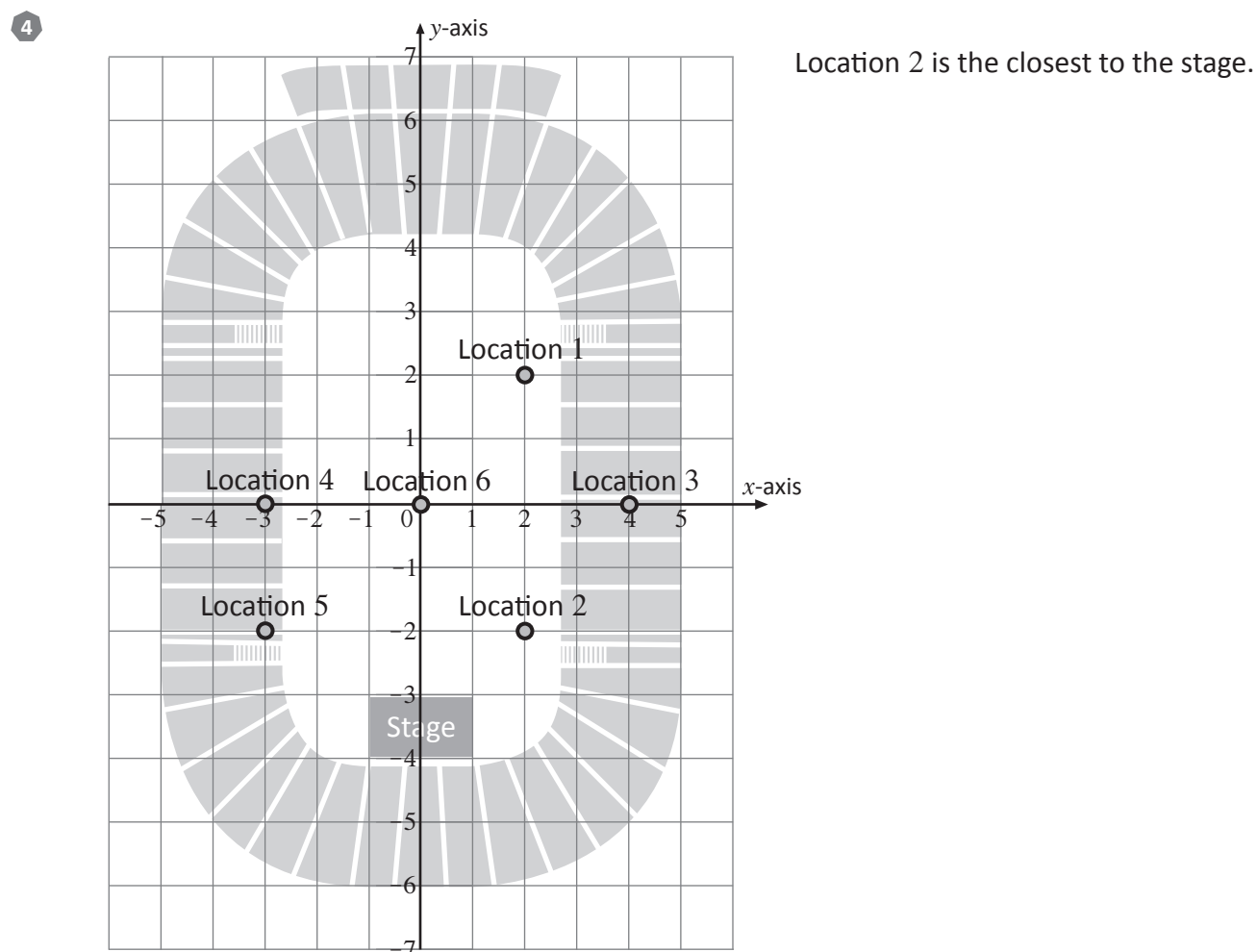
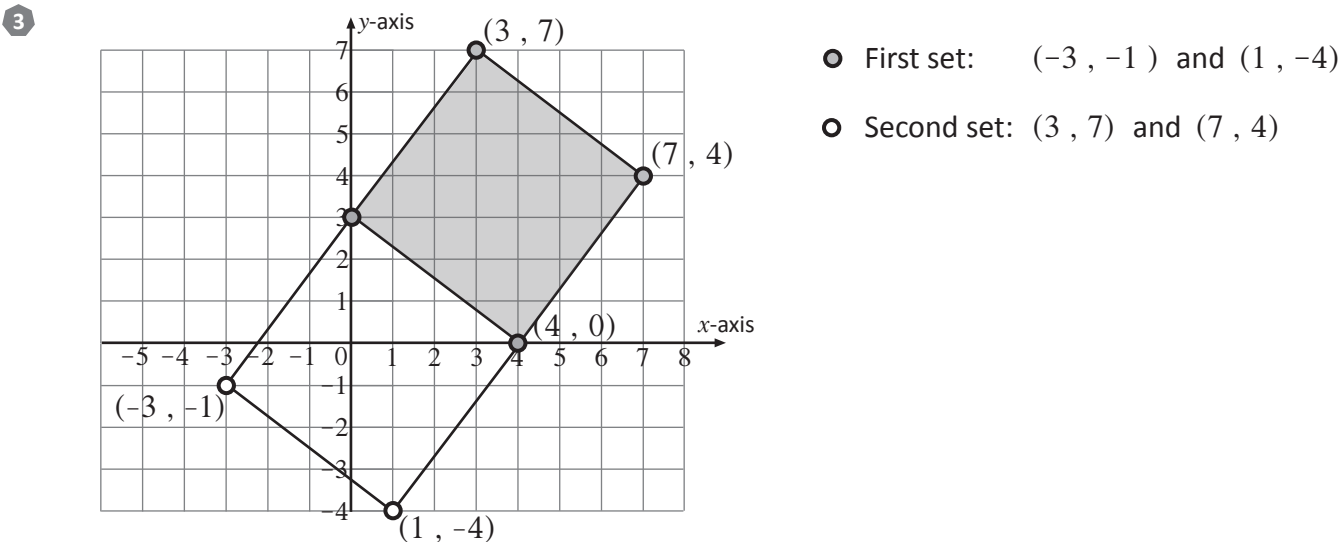
- 2 (i)



- (ii) When a straight line is drawn between the waterfall and the look out, it does not pass through the base camp, so the three locations do not form a straight line.
- (iii) Fabio is at the waterfall. For Mark to get there he must:
 Walk 9 units South then walk 9 units East
 Or
 Walk 9 units East then 9 units South
 Any directions that total 9 units South and 9 units East of movement will work.

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Interesting applications

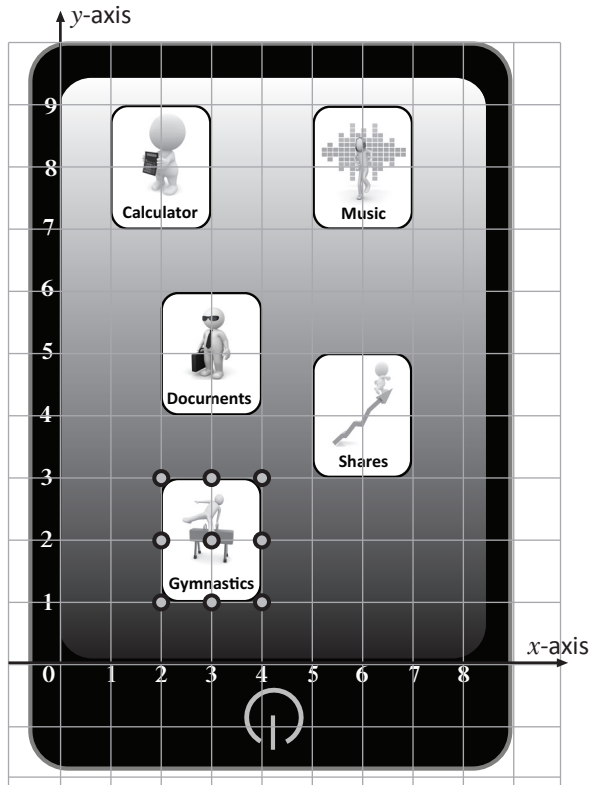


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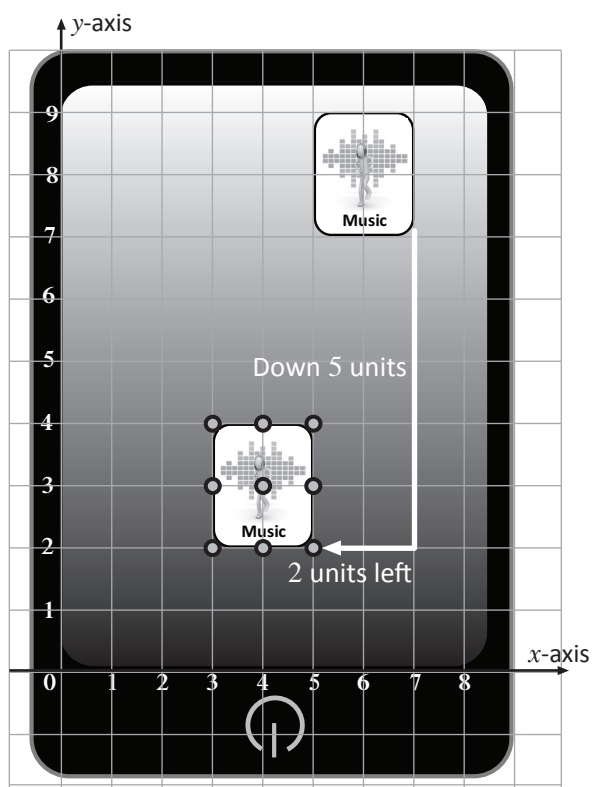
Interesting applications

5

a

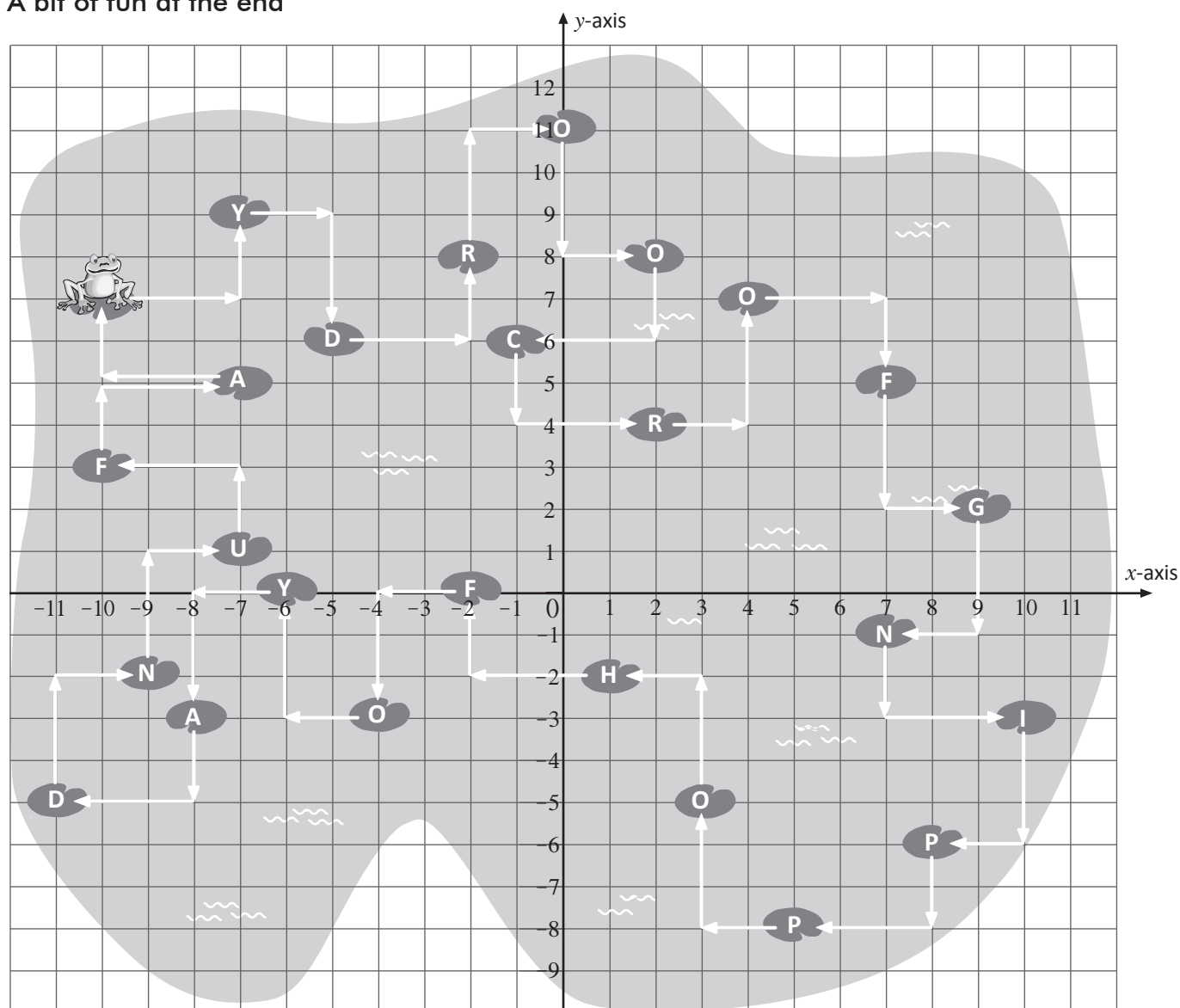

 $(2, 1)$ $(2, 2)$ $(2, 3)$ $(3, 1)$ $(3, 2)$
 $(3, 3)$ $(4, 1)$ $(4, 2)$ $(4, 3)$

b


 $(3, 2)$ $(3, 3)$ $(3, 4)$ $(4, 2)$ $(4, 3)$
 $(4, 4)$ $(5, 2)$ $(5, 3)$ $(5, 4)$

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A bit of fun at the end



The pattern is: "three and two"

$\frac{Y}{(-7, 9)}$ $\frac{D}{(-5, 6)}$ $\frac{R}{(-2, 8)}$ $\frac{O}{(0, 11)}$ $\frac{O}{(2, 8)}$ $\frac{C}{(-1, 6)}$

$\frac{R}{(2, 4)}$ $\frac{O}{(4, 7)}$ $\frac{F}{(7, 5)}$

$\frac{G}{(9, 2)}$ $\frac{N}{(7, -1)}$ $\frac{I}{(10, -3)}$ $\frac{P}{(8, -6)}$ $\frac{P}{(5, -8)}$ $\frac{O}{(3, -5)}$ $\frac{H}{(1, -2)}$

$\frac{F}{(-2, 0)}$ $\frac{O}{(-4, -3)}$

$\frac{Y}{(-6, 0)}$ $\frac{A}{(-8, -3)}$ $\frac{D}{(-11, -5)}$ $\frac{N}{(-9, -2)}$ $\frac{U}{(-7, 1)}$ $\frac{F}{(-10, 3)}$

$\frac{A}{(-7, 5)}$

Read backwards: A fun day of hopping for Coordy

